

## Environmental and Social Strategy<sup>1</sup>

### **A. Project Description.**

1. The operation involves IDB providing Braskem S.A. with an approximately US\$50 million Partial Credit Guarantee (“PCG”) for an approximately US\$200 million domestic structured corporate bond denominated in Brazilian reais (“R\$”). Proceeds will be used to support Braskem’s 2003-2005 investment program to expand its facilities at the Camaçari Petrochemical Complex.
2. Braskem, the largest Latin America’s integrated petrochemical producer, was recently formed in August 16, 2002 by the corporate integration of six major companies: Copene that produces basic petrochemicals (first generation products) and five other companies, OPP Química, Trikem S.A, Nitrocarbono S.A. Polialden and Proppet S.A. that produce several second generation products such thermoplastics (i.e., polyolefins) and chemicals (i.e. chlorine and caustic soda) and other products. Copene’s original assets are estimated to represent approximately 50 percent of Braskem’s assets when the merge was completed. It is controlled by the Brazilian groups Odebrecht and Mariani, with other important shareholders such Petroquisa (Petrobras group) and the major Brazilian private pension funds Previ and Petros.
3. The Company directly employs approximately 2,800 people and operates 13 industrial plants located in the states of Bahia (the Camaçari Complex), Alagoas (in Maceió and Marechal Deodoro, but referred here as the Maceió Complex), São Paulo (the São Paulo Complex), and Rio Grande do Sul (the Triunfo Complex). In the Camaçari Complex, Braskem operates two polyethylene plants, one PVC plant, one PET plant, one Chlorine/Alkali plant, one Caprolactam plant, and a naphtha cracker, formerly known as Copene, the predecessor company of Braskem. In the other complexes Braskem operates: (i) a PVC and a Chlorine/Alkali Plant in the Maceió Complex, (ii) a PVC Plant in the São Paulo Complex, and (iii) a polypropylene and two polyethylene plants in the Triunfo Complex

### **B. Institutional and Regulatory Context.**

4. Braskem’s 12 industrial Plants have been granted an Environmental Operation Permit (Licença de Operação Ambiental), and are currently in compliance with all federal, state, and municipal applicable regulations.
5. Given the complex environmental, social, health and safety characteristics of this Project, the Bank has requested the development of an Environmental Analysis (EA), which will focus on the environmental, social, labor, and health and safety liabilities, risks, and impacts related to the proposed investment plan at Camaçari Complex, and outline environmental, social, labor,

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<sup>1</sup> This Environmental and Social Strategy (ESS) is being made available to the public in accordance with the Bank's Policy on Disclosure of Information. The ESS has been prepared based primarily upon information provided by the project sponsors and does not represent either the Bank’s approval of the project or verification of the ESS’s completeness or accuracy. The Bank, as part of its due-diligence on the feasibility of the project, will assess the environmental and social aspects. This assessment will be presented in the project Environmental and Social Management Report, prepared by the Bank, and will be made available to public prior to consideration of the project by the Bank’s Board of Executive Directors.

and health and safety liabilities, risks, and impacts associated with all Braskem's existing facilities. Depending on the works associated with the investment program, individual IEAs may be required. The EA will be disclosed locally and at the IDB headquarters before the Due Diligence visit, and shall be adequately discussed with potentially affected population and other stakeholders.

### **C. Environmental Impacts, Risks, and Control Measures.**

6. As with most petrochemical industrial facilities and petrochemical complexes, the main environmental and health and safety issues are those associated with the use, handling and disposal of hazardous materials, wastewater discharges, soil and groundwater contamination, atmospheric emissions, and noise generation. Additionally, as this is a newly formed group and some of the acquired facilities date back to the 1950's and 70's, some of the facilities may not be up to corporate standards, use older equipment and technologies, and may present existing environmental liabilities (contaminated soil and groundwater, etc.) and, in general, pose a greater risk than newer ones. The situations of greatest concern are those related to the PVC and Chlorine and Soda plants in Alagoas and Camaçari, and the PVC plant in São Paulo. Furthermore, the fact that the Petrochemical Complexes include facilities that do not belong to Braskem, also presents a concern that needs to be addressed.
7. At the Corporate level, the Company seems to have the right attitude, has developed an Environmental and Health and Safety Policy and it is implementing a unique an integrated system to appropriately manage ESH&S issues at all facilities, with assigned budgets and dedicated qualified staff. Additionally, ten out of twelve facilities have some certification based on ISO 14001 standard, and the rest are scheduled for certification in 2004. Furthermore, Braskem is an active member of (i) Responsible Care Program sponsored by the Brazilian Chemical Industry Association, which encourages member companies to strive for continual improvement in matters relating to occupational health and safety, environmental protection, and accident prevention and control, and (ii) the Brazilian Council of Sustainable Development.
8. At the Petrochemical Complex level, Braskem has often led the preparation and implementation of emergency response programs together with local authorities, and is active in fostering relations with other companies within the complexes as well as with nearby communities. In all Complexes solid waste and wastewater treatment, as well as mostly of the monitoring, are managed in conjunction with specialized centralized entities that assure compliance, and manage wastewater and waste handling, treatment, and disposal.
9. Specifically in Camaçari, five out of the seven Braskem's facilities in this Complex have been ISO 1400 standard certified, and the remaining two plants will be certified in 2004.

### **D. Environmental and Social Strategy**

10. The Bank, as part of the due diligence process, will analyze the environmental and social aspects of the Project and establish the appropriate environmental, social, health and safety, and labor requirements in the Guarantee Proposal for review and approval by the Bank's Committee on Environment and Social Impacts (CESI).

11. Since most of the proceeds for the investment plan 2003-2005 are to be used to expand Braskem's facilities at the Camaçari Petrochemical Complex, during the Environmental and Social Due Diligence the team will place special emphasis on this Complex and the impacts and risks associated to the investment plan. However the environmental and social due-diligence will address all relevant and applicable environmental and social technical aspects associated with Braskem as a Corporation, the 12 industrial plants operated by Braskem, and the four Petrochemical Complexes where Braskem operates. The environmental and social due diligence will specifically include the components listed below:

- a) An assessment of compliance status with the applicable country (national, state, municipal) environmental, social, and, health and safety regulatory requirements (e.g., laws, regulations, standards, permits, authorizations, applicable international treaties/conventions, etc.), project-specific legal requirements, and any applicable Bank environmental and social policy. Special emphasis will be placed to assure legal compliance of any significant capacity increase and/or major infrastructure works involved with the investment plan to be financed by the IDB;
- b) An evaluation of the proposed 2003-2005 investment plan and existing facilities to confirm that direct and indirect environmental and social impacts have been properly identified and evaluated. Special emphasis will be placed on the evaluation of the level of significance of: (i) the construction and operation environmental, social, H&S, and labor impacts and risks associated with the investment plan, (ii) risks of soil and groundwater contamination and the levels of volatile organic carbons (VOC) and fugitive emissions at existing facilities, (iii) the noise emissions from existing plants, (iv) the adequacy of incineration procedures and emission levels and monitoring for toxics emissions, (v) the air emission and effluent concentration of some hazard substances like benzene, methanol etc., (vi) the environmental and safety impacts and risk of the Chlorine/Alkali Plant in the Maceio Complex to both the restricted area of the *Mundau Lagoon* and the urban area of Maceió, and (vii) the direct and indirect impacts and risks of Triunfo Complex on the *Parque Copesul de Proteção Ambiental*;
- c) An evaluation to ensure completeness, sufficiency of detail, implementability, cost, definition of responsibility, schedule, and quality control of the Environmental and Social Management Systems including mitigation and control measures and monitoring plans. Since this is a newly created Company, special emphasis will be placed on evaluating how well integrated and what is the level and adequacy of both the Corporate and Facility Environmental Management System (EMS), its consistency with ISO 14001 standard, and the adequacy of its staffing and budget. The frequency and level of the EMS audits, and the adequacy and level of implementation of Corrective Action Plans will also be assessed. Additionally, the Bank will evaluate the level and adequacy of the wastewater treatment, solid and hazardous waste management, storage and disposal, and air emission monitoring at common facilities that function and are managed by third parties in the different Petrochemical Complexes Braskem operates in (e.g CINAL in the Maceió PC, CETREL in the Camaçari PC and SITEL and SICECORS in Triunfo PC). Special emphasis will be placed on assessing the level and adequacy of Braskem's management involvement with the supervision of the appropriate functioning of these facilities. Greater care will be given to this evaluation on older facilities such as the Chlorine/Alkali Plants at the Maceió and Camaçari Complexes, and the PVC plants in São Paulo and Camaçari Complex;

- d) An evaluation to ensure adequate health and safety plans and procedures, including their technical adequacy given the potential Project-specific health and safety risks, adequate level of training to be performed, and sufficient resources to be made available to ensure adequate implementation. Since this is a newly created Company, special emphasis will be placed on evaluating how well integrated and what is the level and adequacy of both the Corporate and Facility Health and Safety Management System (HSMS), its consistency with OHSAS 18001, and the adequacy of its staffing and budget. The frequency and level of the HSMS audits, and the adequacy and level of implementation of Corrective Action Plans will also be assessed. Special emphasis will also be placed on the Company's activities and role with Responsible Care, as well as its effective compliance with this organization's ruling principles and requirements. Greater care will be given to this evaluation on older facilities such as the Chlorine/Alkali Plants at the Maceió and Camaçari Complexes, and the PVC plants in São Paulo and Camaçari Complex;
- e) An evaluation to confirm adequate contingency plans (i.e., emergency response program and spill plans), including confirmation that all relevant Project-specific environmental risks have been identified, proper procedures have been developed, and sufficient resources will be made available to ensure adequate implementation. Special emphasis will be placed on determining the adequacy and level of Braskem's involvement on the emergency, evacuation, and spill prevention plans of the different Petrochemical Complexes;
- f) An evaluation of Braskem's compliance with the Fundamental Principles and Rights at Work and with any other international labor organization conventions and treaties which have been ratified by Brazil, specifically with regard to any significant personnel reduction as a result of the recent merge and acquisition;
- g) An evaluation of Project-related information disclosure and public consultation activities that have been performed, as well as of the proposed future actions to provide adequate ongoing information disclosure and public consultation with local affected population and other stakeholders. This will include (i) assurance of effective public consultation and disclosure of the Environmental Analysis and any EIA related to the Investment Plan, (ii) effectiveness, thoroughness and channels of distribution of the first annual environmental report or *Relatório de Sustentabilidade Empresarial*, and (iii) adequacy and effectiveness of any community relation program with the nearby communities (e.g. *Conselho Comunitário Consultivo* of the towns of Camaçari and Dias D'Ávila);
- h) An evaluation, and further development as necessary, of Project monitoring and supervision procedures to ensure proper implementation of environmental, social, and health and safety actions and requirements;
- i) An evaluation of environmental, social and health and safety terms and conditions in relevant Project legal documents (e.g., construction contract, operations and maintenance contract, etc.), in terms of sufficiency, potential risks or liabilities; and
- j) An evaluation of potential, existing, and future environmental, social, or health and safety financial/credit risks and liabilities associated with the Project. Special emphasis will be placed on (i) determining the existence of any environmental, social, H&S, or labor legal actions against Braskem, (ii) the risks and clean-up and/or remediation proposed procedures for the reported environmental liabilities in the Maceió, Camaçari, and Triunfo Complexes, (iii) the significance and materiality of the reported

environmental related insurance claims (e.g. PVC Plant in Maceió Complex, Polypropylene Plant in Triunfo Complex, or the Chlorine/Alkali and Polyethylene II Plants in the Camaçari Complex), and (iv) the significance of the risk of asbestos exposure in the Chlorine/Alkali Plant in Maceió Complex.